5-26-2011

SLIDES: Introduction to Large-Scale Planning and the Intermountain BMP Project

Kathryn Mutz

Environmentally Friendly Drilling Project Quarterly Meeting

Thursday, May 26, 2011

Best Management Practices:

What? How? And Why?

Host: Natural Resources Law Center
University of Colorado Law School
Boulder, CO

EFD

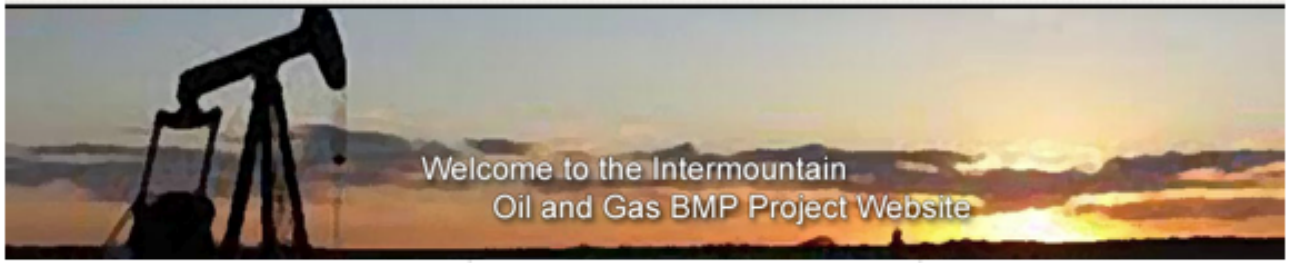
NATURAL RESOURCES LAW CENTER

Intermountain Oil and Gas BMP Project

BMP WORKSHOP AGENDA

TIME	TOPIC	PRESENTER
8:00-9:00	Registration and Coffee	
9:00-9:15	*Welcome and Introductions*	**David Getches,** University of CO Law School **Kathryn Mutz,** NRLC **Rich Haut,** HARC
INCORPORATING BMPS INTO LARGE-SCALE DEVELOPMENTS		
9:15-9:30	***Large-scale Planning and the Intermountain Oil & Gas BMP Project***	**Kathryn Mutz,** NRLC
9:30-10:30	***Planning of Multiple Well Pad Developments***	**Ginny Brannon,** CO Department of Natural Resources **Mary Bloomstran,** Edge Environmental **Matt Sura**, University of CO Law School
10:30-11:30	**Participants' Perspectives and Discussion**	*All workshop attendees are invited to share their experience* - **Tisha Schuller**, COGA - **Brian Gentry**, EFD Public Perception Study
11:30-1:00	Lunch on your own	
BMP COSTS AND BENEFITS		
1:00-1:30	***Cost/Benefit Analysis of BMPs***	**Tim Considine**, School of Energy Resources, University of WY
1:30-2:15	***Reclamation Practices***	**Peter Stahl,** WY Reclamation and Restoration Center **Joe Schneider**, Western States Reclamation
2:15-3:00	**Participants' Perspectives and Discussion**	*All workshop attendees are invited to share their experience* - **Rich Haut,** HARC, EFD Scorecard - **Eric Biltonen,** HARC, Ecosystems Services Project
3:00-3:15	Break	
3:15-3:45	***Managing Air Quality*:** **Urban Challenges in the Rural West Gas Patch**	**Kate Fay,** Energy and Climate, USEPA, Region 8
3:45-4:15	**Participants' Perspectives and Discussion**	*All workshop attendees are invited to share their experience* - **Jeremy Nichols,** WildEarth Guardians
4:15-4:30	Wrap Up	**Rich Haut,** HARC **Kathryn Mutz,** NRLC
EVENING PROGRAM		
7:00-9:30	***Movie Screening and Discussion*** **Haynesville: A Nation's Hunt for an Energy Future** Presented by Mark Bullard, Producer, Writer and Cinematographer	

Intermountain Oil and Gas BMP Project



Best Management Practices

The Natural Resources Law Center and its partners welcome you to this free-access website of best management practices (BMPs) for oil and gas development in the Intermountain West. The focus of this website is a searchable database addressing surface resources affected by oil and gas development. The database includes both mandatory and voluntary practices currently in use and/or recommended for responsible resource management in the states of Colorado, Montana, New Mexico, Utah, and Wyoming.

The BMP database is not intended to represent a consensus on what the best practices are for specific applications nor to advise users on the current legal requirements for specific locations. Rather, the database describes each practice and documents the source of the practice (who requires or recommends it in what specific applications). The database provides a link to the source of the BMP and, where possible, it provides supplemental information, including construction specifications, illustrations, pictures, maps, monitoring reports, and evaluations of the potential of the practice for mitigating impacts of development. Because practices change over time, database users should check with appropriate authorities to verify the latest requirements and recommendations for your area.

TRAINING AND WORKSHOPS

The BMP project hosted its first workshop on October 14, 2009 in Rifle CO: **Best Practices for Community and Environmental Protection**. Almost 60 people participated in a field trip hosted by Williams Production and over 170 attended the sessions at the Garfield County Fairground. For details on the Rifle workshop, go to the Rifle Workshop Webpage for a copy of the agenda and powerpoint presentations made at the workshop.

BMP Categories

The database includes BMPs to address a variety of resources and issues...

- Air quality
- Aquatic/riparian values
- Climate
- Cultural/Historic
- Grazing
- Health/Safety
- Noise
- Other
- Socioeconomic
- Soils/Surface
- Vegetation
- Visual aesthetics
- Water quality
- Water quantity
- Wildlife disruption
- Wildlife habitat

Browse all

BMP Search

What management practices are recommended or required for oil and gas development? To find out, use the drop down menus or type Keywords. For a more refined search, click "Advanced Search" or use the BMP SEARCH button.

Keywords:

Category: Any

Location: Any

Advanced Search...

Submit Reset

Search the Bibliography

Our searchable bibliography includes over 400 publications, including environmental impact statements, agency guidelines, and many technical reports, websites, and journal articles prepared by

What's New

New Workshop, Oct 14, 2010
Opportunities and Obstacles to Reducing the Environmental Footprint of Natural Gas Development in the Uintah Basin

This public workshop will review results of a recent study of energy-environment issues in the Uintah Basin of Northeastern Utah, and will highlight examples of environmental innovation taking place in the region.

Research Assistants needed
The Natural Resources Law Center is interested in hiring two part-time students for the 2010-2011 school year to assist with the Intermountain Oil and Gas BMP Project. See our Employment page for more details.

The Intermountain BMP Project is a work in progress. Currently, the database includes BMPs for a variety of resources (see the BMP Categories section) from a range of source documents (see the Bibliography), including project Environmental Impact Statements, Resource Management Plans, state wildlife agency guidelines, and industry and conservation group reports and websites.

Our newest Resources page

Plans and Agreements Comparison Table

	Master Development Plan (MDP) * (Federal, BLM)	Comprehensive Drilling Plan (CDP) (State, Colorado)	Geographic Area Plan (GAP) (State, Colorado)	Wildlife Mitigation Plan (WMP) (State, Colorado)	Watershed Plan (Local Government)	Good Neighbor Agreement (GNA)	Community Development Plan (CDP)	Joint Lease Agreement	Pooling Interests
What is the origin of the plan/agreement?	Onshore Oil and Gas Order #1 link to http://www.blm.gov/wy/st/en/programs/energy/oil_and_gas/32nd_Publication.html	2 CCR 404-1 Practice and Procedure Rule 216 link to: http://www.sos.state.co.us/CCR/Rule.do?deptID=13&agyID=4&ruleVersionId=4085&fileId=20&department%20of%20Natural%20Resources&agency%20Oil%20and%20Gas%20Conservation%20Commission&ccrNumber=2%20CCR%20404-1&ruleVersion=Rule%20216.&fileName=2%20CCR%20404-1%20Rule%20216.	2 CCR 404-1 Practice and Procedure Rule 513 link to: http://www.sos.state.co.us/CCR/Rule.do?deptID=13&agyID=4&ruleVersionId=4085&fileId=20&department%20of%20Natural%20Resources&agency%20Oil%20and%20Gas%20Conservation%20Commission&ccrNumber=2%20CCR%20404-1&ruleVersion=Rule%20513.&fileName=2%20CCR%20404-1%20Rule%20513.	Guided by COGCC Rule 1200-1265. Link to: http://cogcc.state.co.us/RR_Docs_new/rules/1200drilwildrules.pdf	City of Grand Junction Watershed Protection Ordinance # 3981; include authority for creating watershed plans. link to: http://www.gjcity.org/cityhall/ordinances%20and%20resolutions/2008/3981.pdf					
Purpose of the Plan/Agreement	To provide a detailed plan of development of multiple proposed oil and gas wells that are in close proximity to each other and have similar producing zones or for multiple in-fill wells.	To provide a detailed plan of development, to identify potential impacts, and to initiate discussion of how to mitigate them.	To provide a detailed plan of development for an entire basin or oil and gas field. Aims to address cumulative impacts from oil and gas development. Intended to assist the COGCC to adopt basin specific rules that promote purposes of the Colorado Oil and Gas Conservation Act.	To identify and mitigate effects of oil and gas production on wildlife.	To identify and mitigate potential impacts of oil and gas development to a specific watershed.	Identifies potential impacts on environment and community well being from oil and gas development. Provides a means of collaboration to resolve these issues and initiate a relationship between the operator and community.	Identifies potential impacts on environment and community well being from oil and gas development. Provides a means of collaboration to resolve these issues and initiate a relationship between the operator and community.	Identifies potential impacts on the environment and landowners. Joint action can result in leverage for negotiations.	Resolves ownership and mineral rights disputes when oil or gas is only recoverable from a specific pool, although many may have ownership rights to that reserve.
How is it initiated? Is it voluntary or required?	Initiated by operator, can be requested by BLM. Operator voluntarily enters into the plan's requirements.	Initiated by the operator. Can be requested by the COGCC. Operator voluntarily enters into the plan's requirements.	Initiated by the COGCC	Optional - for an area where development can have wildlife habitat	Initiated by municipalities and BLM, voluntarily abided to by the operator.	Initiated by communities and industry. Can be voluntary or legally binding, such as being incorporated as a condition of formal permitting process.	Initiated by the parties involved: the community, local government officials, and the operator. Voluntarily entered into by the operator and consultants.	Initiated by land/mineral owners.	Initiated by COGCC, multiple operators, mineral holders, land owners.
Who is involved in the planning process?	Operator, BLM, DOW, USFS, MDP must include appropriate analysis required by NEPA which may involve additional parties	The operator(s), COGCC, CDPHE, Colorado DOW, local government designee(s), and all surface owners.	The COGCC, CDPHE, Colorado DOW, local government designee(s), and the public	Colorado DOW and the operator	The BLM, Operator, Municipal governments	Community members, local government/Local organizations and operator.	The Community members, community organizations, the operator, and the help of the county commissioners.	Land/mineral owners and industry	COGCC, multiple operators, land owners/mineral holders (2 or more). Legally enforceable.
Can it be applied to multiple operators?	Applies to single operator	Can apply to multiple operators if within the same geographic area.	Intended to involve multiple operators.	Individual operators	Can involve multiple operators. Applies to the owners of the leases within the watershed, will apply to subsequent owners if leases are transferred.	Can apply to multiple operators.	Can apply to multiple operators	Can apply to multiple operators	Applies to two or more operators/mineral holders, cannot apply to single operator/minerals holder.
What area does the plan/agreement cover?	Covers a single area, can be large scale. Ideally, the area has homogeneous geologic and environmental characteristics.	Over a specified geographic area within a geologic basin. A CDP will cover more than one proposed oil and gas location in a geologic basin, but the scope is up to the operator.	An entire oil and gas field or geologic basin	Covers a specified geographic area of wildlife habitat	Covers a specific Watershed for a given area.	Covers the municipality/community area involved in the plan. Restricted by municipal boundaries, unless multiple neighboring municipalities are involved.	Over a specified geographic area in the plan	Covers the lands/minerals of the cooperating owners	Covers several tracts of land, each having different ownership, that overlay known oil or gas reserves. Yet all oil and gas might only be recoverable by a single well on one of the tracts as a result of its fluidity.
How is it enforced?	Includes lease stipulations (i.e.- no surface occupancy, controlled surface use, timing limitations, etc.)	Drilling plan is documented in agreed-upon conditions of approval that can be enforced by the COGCC.	A GAP is adopted through the COGCC's rulemaking procedures and is enforceable as a rule.	Established in the COGCC Rules	May be enforceable as a city ordinance (e.g., Grand Junction, CO). Community oversight over specific plans	Can be linked to environmental permitting process. May include oversight agreements which allow stakeholder oversight and inspection. May also serve as settlement agreement in aftermath of accident, spill, etc.	Not in the Rules or statutes. Cannot be legally enforced since it's a non-legal binding plan. The agreements made can be mandated by a designated community group.	Through the terms of the lease.	Can be voluntarily entered by multiple operators/mineral holders. If not agreed to, the Oil and Gas Conservation Commission is authorized to issue a compulsory Joint Lease issue it, for example, a single operator refuses to agree.
Are BMPs included? Required/Recommended?	Operators are "encouraged[d] to consider Best Management Practices in the Best APDs."	May include BMPs, May be required through conditions of approval.	Not stated in Rule 513, but BMPs could be included in development scenarios and consolidation of facilities.	Yes	BMPs recommended but not legally required or binding. Voluntary agreement by developer.	Typically included. Recommended.	Yes. Recommended	Yes. Could included required measures	Does not include BMPS, agreement is focused on mineral rights and ownership, not production.
Does it include a mechanism for evaluating success? For making adjustments?	Mechanism for evaluating success is not included. APDs for subsequent wells that are not included in plan, must reference and adhere to MDP. New APDs can include significant new information relevant to environmental effects.	Mechanism for evaluating success not included in Rule 216. Encouraged local gov't./community input can encourage proper implementation. Can be subject to modification (Rule 216.h.).	Rule 513 includes the potential for implementing sampling or monitoring plans. Potential subsequent adjustments to plan are not addressed.	None are identifiable within rule.	Included in BMPs for risk mitigation. Third-party water studies and monitoring to occur throughout entire development process that establish baseline hydrological conditions and assess potential impacts of development.	Based on community involvement/concern, allows for adjustments needed to establish new goals based on current management practices.	Community involvement and oversight encourages adjustments of management practices.	Could include if negotiated	None identifiable in rule.
Pros of the plan/agreement	Eliminates redundancies in planning, applications, paperwork, etc. Facilitates better planning of infrastructure, orderly development, and cumulative effects analysis. May allow approval of subsequent APDs that reference the MDP using NEPA analysis of the MDP.	The operator is required to invite the Colorado Department of Public Health and Environment (CDPHE), the Colorado Division of Wildlife (CDOW), any local governmental designees, and all surface owners to participate in development of the CDP. Use of CDP can expedite permitting.	Follows rulemaking proceeding (Rule 529), including public hearing and publication of notice. Includes all operators in the geographic area.	Includes BMPs, and identifies specific greenlit operating requirements (Rule 1203).	Recommends BMPs, transferable to subsequent operators, encourages collaboration	Encourages collaboration between community and operators. Emphasizes use of latest BMPs.	Promotes the use of BMPs, provides community vision, encourages collaboration with operators.	Promotes the use of BMPs, facilitates addressing cumulative impacts	reduces the rights of owners and producers in a common source or pool of oil and gas to the end that each such owner and producer in a common pool or source of supply of oil and gas may obtain a just and equitable share of production.
Cons of the plan/agreement	Can be large and complex, how do we ensure every necessary issue is addressed? Multiple leases may have different stipulations, can each of those be individually addressed within the plan?	Can be large and complex, how do we ensure every necessary issue is addressed? Multiple leases may have different stipulations, can each of those be individually addressed within the plan?	Being a 10 year plan, it seems a mechanism for adjustments or revision would be critical.	Sensitive Wildlife Habitat map and the Restricted Surface Occupancy map maintained by the Commission, need mechanism to ensure these resources are constantly up to date, all sensitive areas accounted for.	Not included in COGCC rules. No established mechanism for evaluating success of plan.	Maintaining community involvement can be difficult. Not always legally binding.	Based on community participation, it becomes difficult to ensure consistency when people are coming and going.	May slow development of gas resources	Can be difficult to get all owners to consent, and bear proportionate share of costs and risks.
Examples of the plan/agreement	West Mamm Master Development Plan for Oil and Gas exploration in Garfield County, Colorado: http://www.blm.gov/pgdata/etc/medialib/blm/co/information/nepa/grand_junction_field_office/west_mamm_creek.Par.30911.File.dat/WestMammMasterDevelopmentPlan.pdf	Oil and Gas Development in Battlement Mesa, Colorado: http://www.silverdgastemps.org/resources/documents/battlemesa/battlemesaindex.htm	South Parachute Geographic Area Plan: http://www.blm.gov/pgdata/etc/medialib/blm/co/field_offices/colorado_river_valley_field_office/gas_and_oil.Par.11.File.dat/SouthParachuteGeographicAreaPlan.pdf	For more information on Wildlife see: http://www.silverdgastemps.org/resources/wildlife.php. *still searching for specific example. Perhaps DOW can supply.	Watershed Plan for the Town of Palisade and City of Grand Junction: http://www.silverdgastemps.org/docs/COGCC-Greenslit20070801_watershed.pdf	Stillwater Good Neighbor Agreement in South-central Montana: http://rich.org/stories/stillwater-good-neighbor-agreement	The Rifle, Silt, New Castle Community Development Plan: http://www.silverdgastemps.org/docs/CDMP-RSNCCommunityDevelopmentPlan.pdf		
Notes	* Also known as a Plan of Development (used in Montana and Wyoming)								

BMP Project Components

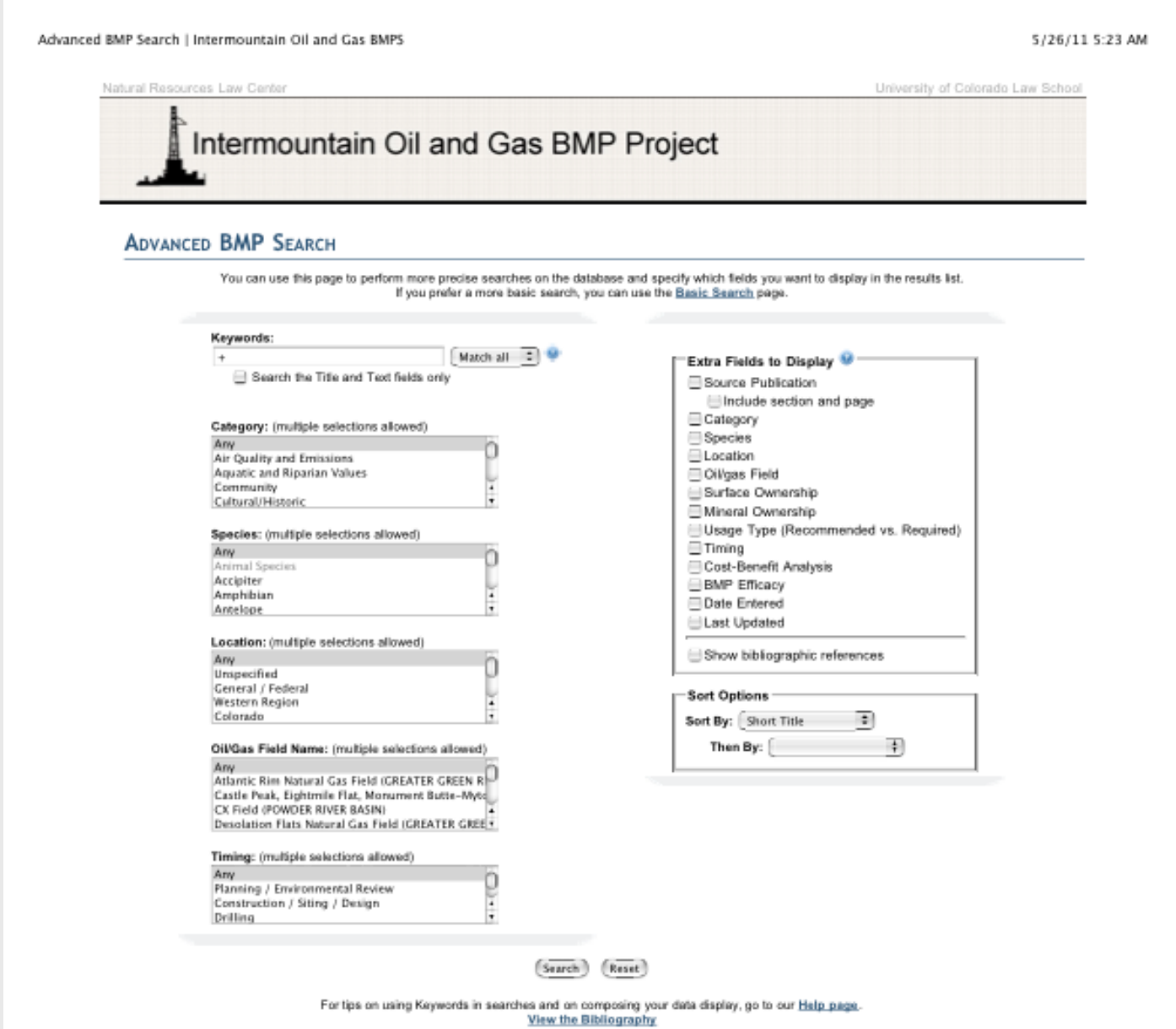
1 *Searchable Database & Bibliography*

2 *Website Background Materials*

3 *Research Services*

4 *Workshops*

Searchable BMP Database



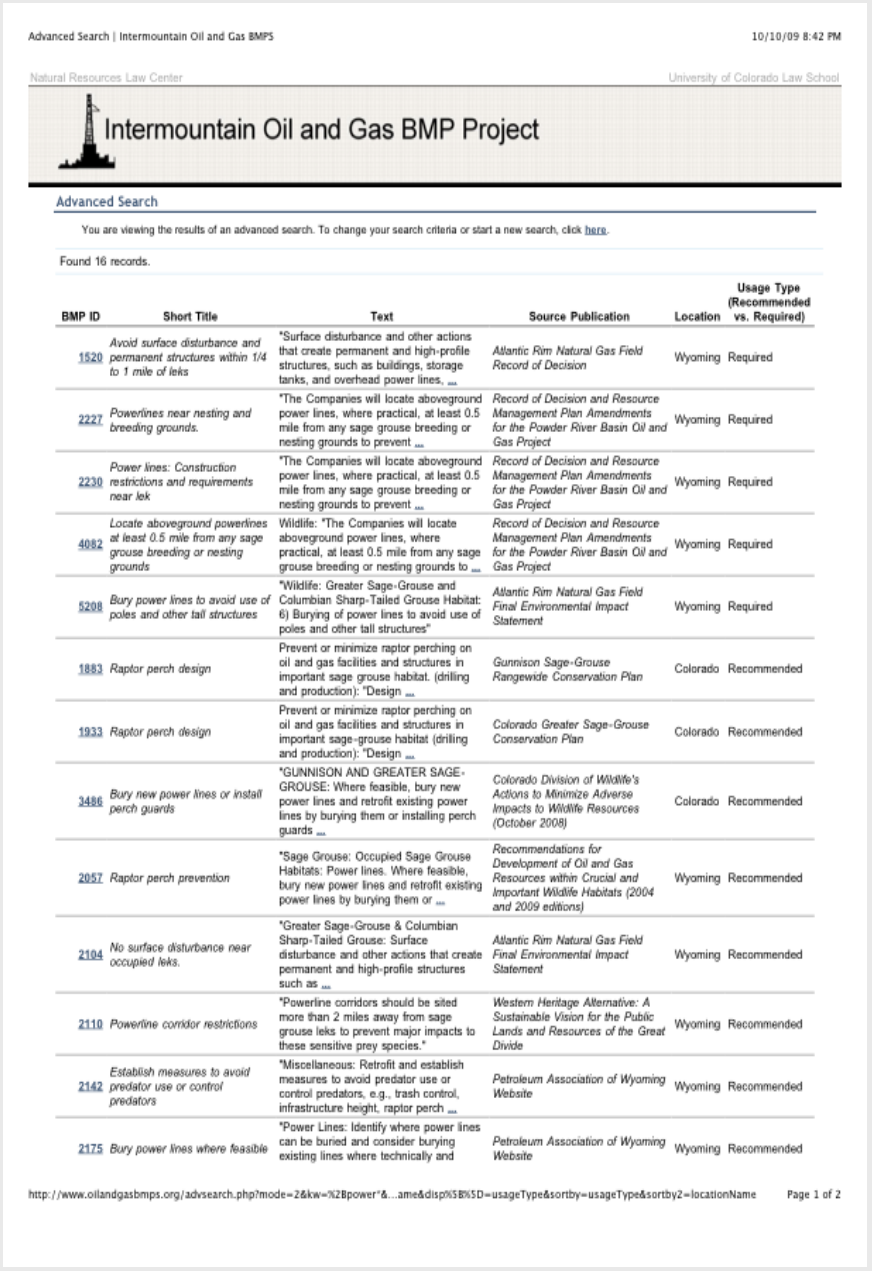
Advanced Search Result

Search Criteria:

- Keywords = +power*
  - ✓ Power(s)
  - ✓ Powerline
  - ✓ Power line
- Category = Wildlife Disruption
- Species = Sage grouse
- Location = CO and WY

Sort Criteria:

1. Required v. Recommended
2. Location



Advanced Search | Intermountain Oil and Gas BMPS 10/10/09 8:42 PM

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Advanced Search

You are viewing the results of an advanced search. To change your search criteria or start a new search, click here.

Found 16 records.

BMP ID	Short Title	Text	Source Publication	Location	Usage Type (Recommended vs. Required)
1520	*Avoid surface disturbance and permanent structures within 1/4 to 1 mile of leks*	"Surface disturbance and other actions that create permanent and high-profile structures, such as buildings, storage tanks, and overhead power lines, ...	*Atlantic Rim Natural Gas Field Record of Decision*	Wyoming	Required
2227	*Powerlines near nesting and breeding grounds.*	"The Companies will locate aboveground power lines, where practical, at least 0.5 mile from any sage grouse breeding or nesting grounds to prevent ...	*Record of Decision and Resource Management Plan Amendments for the Powder River Basin Oil and Gas Project*	Wyoming	Required
2230	*Power lines: Construction restrictions and requirements near lek*	"The Companies will locate aboveground power lines, where practical, at least 0.5 mile from any sage grouse breeding or nesting grounds to prevent ...	*Record of Decision and Resource Management Plan Amendments for the Powder River Basin Oil and Gas Project*	Wyoming	Required
4082	*Locate aboveground powerlines at least 0.5 mile from any sage grouse breeding or nesting grounds*	Wildlife: "The Companies will locate aboveground power lines, where practical, at least 0.5 mile from any sage grouse breeding or nesting grounds to ...	*Record of Decision and Resource Management Plan Amendments for the Powder River Basin Oil and Gas Project*	Wyoming	Required
5208	*Bury power lines to avoid use of poles and other tall structures*	"Wildlife: Greater Sage-Grouse and Columbian Sharp-Tailed Grouse Habitat: 6) Burying of power lines to avoid use of poles and other tall structures"	*Atlantic Rim Natural Gas Field Final Environmental Impact Statement*	Wyoming	Required
1883	*Raptor perch design*	Prevent or minimize raptor perching on oil and gas facilities and structures in important sage grouse habitat. (drilling and production): "Design ...	*Gunnison Sage-Grouse Rangewide Conservation Plan*	Colorado	Recommended
1933	*Raptor perch design*	Prevent or minimize raptor perching on oil and gas facilities and structures in important sage-grouse habitat (drilling and production): "Design ...	*Colorado Greater Sage-Grouse Conservation Plan*	Colorado	Recommended
3486	*Bury new power lines or install perch guards*	"GUNNISON AND GREATER SAGE-GROUSE: Where feasible, bury new power lines and retrofit existing power lines by burying them or installing perch guards ...	*Colorado Division of Wildlife's Actions to Minimize Adverse Impacts to Wildlife Resources (October 2008)*	Colorado	Recommended
2057	*Raptor perch prevention*	"Sage Grouse: Occupied Sage Grouse Habitats: Power lines. Where feasible, bury new power lines and retrofit existing power lines by burying them or ...	*Recommendations for Development of Oil and Gas Resources within Crucial and Important Wildlife Habitats (2004 and 2009 editions)*	Wyoming	Recommended
2104	*No surface disturbance near occupied leks.*	"Greater Sage-Grouse & Columbian Sharp-Tailed Grouse: Surface disturbance and other actions that create permanent and high-profile structures such as ...	*Atlantic Rim Natural Gas Field Final Environmental Impact Statement*	Wyoming	Recommended
2110	*Powerline corridor restrictions*	"Powerline corridors should be sited more than 2 miles away from sage grouse leks to prevent major impacts to these sensitive prey species."	*Western Heritage Alternative: A Sustainable Vision for the Public Lands and Resources of the Great Divide*	Wyoming	Recommended
2142	*Establish measures to avoid predator use or control predators*	"Miscellaneous: Retrofit and establish measures to avoid predator use or control predators, e.g., trash control, infrastructure height, raptor perch ...	*Petroleum Association of Wyoming Website*	Wyoming	Recommended
2175	*Bury power lines where feasible*	"Power Lines: Identify where power lines can be buried and consider burying existing lines where technically and	*Petroleum Association of Wyoming Website*	Wyoming	Recommended

http://www.oilandgasbmps.org/advsearch.php?mode=Z&kw=%2Bpower*&...ame&disp%5B%5D=usageType&sortby=usageType&sortby2=locationName Page 1 of 2

Search Report
BMP Record Detail

Natural Resources Law Center University of Colorado Law School

Intermountain Oil and Gas BMP Project

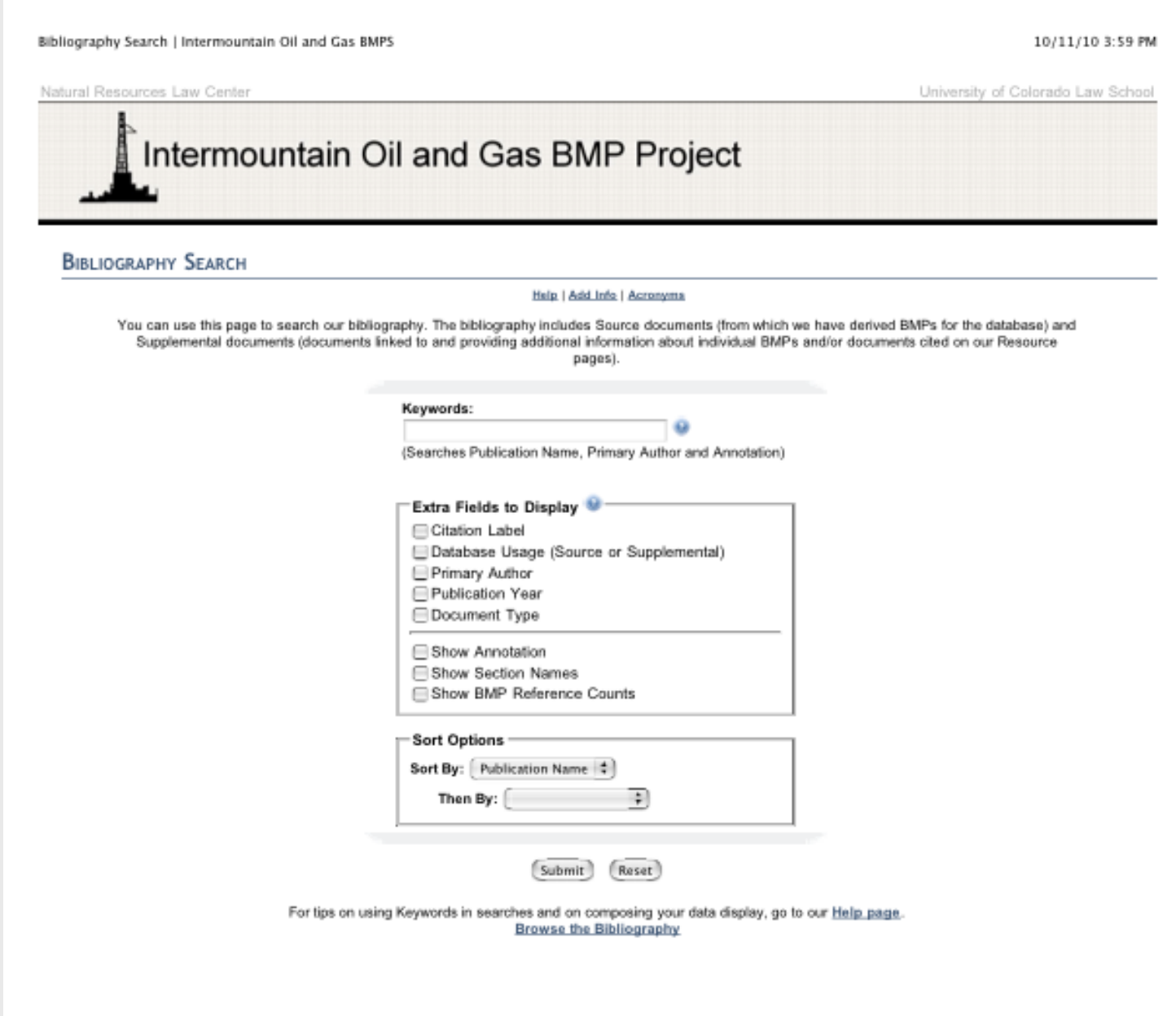
View BMP

BMP ID:	7478
Title:	Connect Casing to Vapor Recovery Unit
Text:	"Crude oil and natural gas wells that produce through tubing may collect methane and other gases in the annular space between the casing and tubing. This gas, referred to as casing head gas, is often vented directly to the atmosphere. One way to reduce methane emissions is to connect the casing head vent to an existing vapor recovery unit (VRU)."
Source Publication Name:	Connect Casing to Vapor Recovery Unit
Citation Section:	Wells: Connect Casing to Vapor Recovery Unit
Citation Page:	
Supplemental Documents:	
Usage Type:	Recommended
Timing:	• Production / Operation / Maintenance
Oil / Gas Field:	
Surface Ownership:	• Federal • State • Private
Mineral Ownership:	• Federal • State • Private
Primary Contact:	Environmental Protection Agency Ariel Rios Building, 1200 Pennsylvania Avenue, N.W. Washington, DC 20460 United States Phone: (202) 272-0167 Alt. Phone: (202) 272-0165 Fax: E-mail:
Alternate Contact:	
Categories:	Air Quality and Emissions
Location:	General / Federal
Species:	
Vegetation Types:	
General Comments:	Pressure regulators would be necessary if low pressure casing head gas is combined with higher pressure sources (e.g., dehydrator flash tank separator) at a VRU suction. Only small diameter piping is required to join a casing head vent to the VRU suction.
Cost-Benefit Analysis:	"This technology can pay back quickly. Revenue from gas recovery will pay back the piping cost and the incremental electrical power required by the VRU to inject the gas into a 100 psig system. At 7.5¢ per kWh, the partner reported gas recovery would increase electricity costs by $3,400 per year."
BMP Efficacy:	"Casing head gas vents vary widely in quantity and methane content. One partner reported an annual average casing head gas methane recovery of 7,300 Mcf per year over a five-year period. This may be equivalent to about 10,000 Mcf per year of gas containing 73 percent methane."
Date Entered:	2010-07-29 08:42 PDT
Last Updated:	2010-07-29 14:12 PDT

1 Searchable Bibliography

- Source documents
  - ✓NEPA Documents
  - ✓Agency guidelines
  - ✓Industry recommendations
  - ✓Environmental group recommendations
  - ✓Community plans
- Supplemental documents
  - ✓Specifications
  - ✓Monitoring data
  - ✓Cost/Benefit Analysis

1 Searchable Bibliography



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Intermountain Oil and Gas BMP Project

BIBLIOGRAPHY SEARCH

Help | Add Info | Acronyms

You can use this page to search our bibliography. The bibliography includes Source documents (from which we have derived BMPs for the database) and Supplemental documents (documents linked to and providing additional information about individual BMPs and/or documents cited on our Resource pages).

Keywords:

(Searches Publication Name, Primary Author and Annotation)

Extra Fields to Display

- Citation Label
- Database Usage (Source or Supplemental)
- Primary Author
- Publication Year
- Document Type
- Show Annotation
- Show Section Names
- Show BMP Reference Counts

Sort Options

Sort By: Publication Name

Then By:

Submit Reset

For tips on using Keywords in searches and on composing your data display, go to our Help page.
Browse the Bibliography

Bibliography Search Result

Search Criteria:

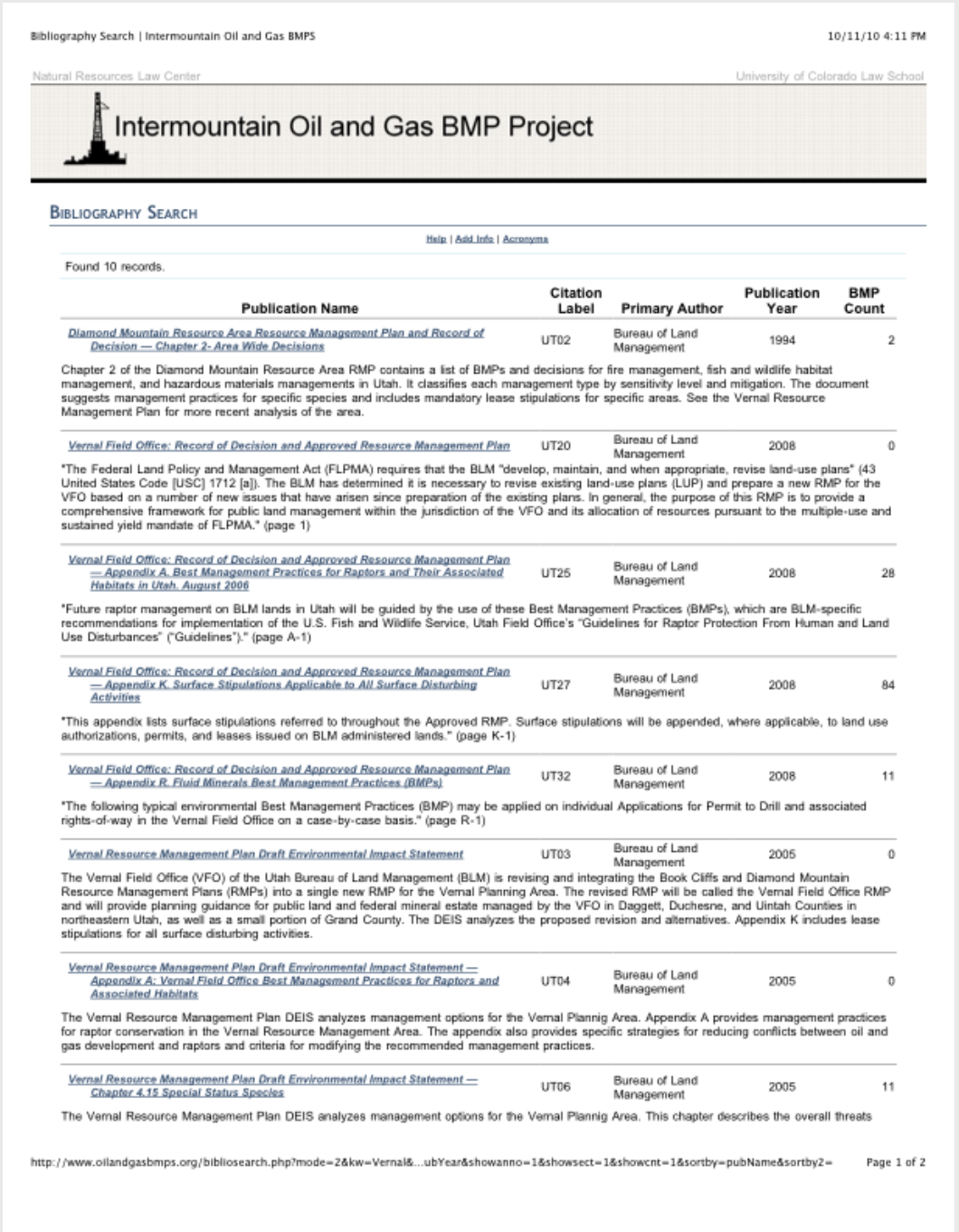
Keywords = Vernal

Display Fields:

- ✓ Title
- ✓ Author
- ✓ Year
- ✓ BMP Count

Sort Criteria:

Publication Name



Bibliography Search | Intermountain Oil and Gas BMPS 10/11/10 4:11 PM

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Intermountain Oil and Gas BMP Project

BIBLIOGRAPHY SEARCH

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Found 10 records.

Publication Name	Citation Label	Primary Author	Publication Year	BMP Count
Diamond Mountain Resource Area Resource Management Plan and Record of Decision — Chapter 2- Area Wide Decisions	UT02	Bureau of Land Management	1994	2
Chapter 2 of the Diamond Mountain Resource Area RMP contains a list of BMPs and decisions for fire management, fish and wildlife habitat management, and hazardous materials managements in Utah. It classifies each management type by sensitivity level and mitigation. The document suggests management practices for specific species and includes mandatory lease stipulations for specific areas. See the Vernal Resource Management Plan for more recent analysis of the area.				
Vernal Field Office: Record of Decision and Approved Resource Management Plan	UT20	Bureau of Land Management	2008	0
"The Federal Land Policy and Management Act (FLPMA) requires that the BLM "develop, maintain, and when appropriate, revise land-use plans" (43 United States Code [USC] 1712 [a]). The BLM has determined it is necessary to revise existing land-use plans (LUP) and prepare a new RMP for the VFO based on a number of new issues that have arisen since preparation of the existing plans. In general, the purpose of this RMP is to provide a comprehensive framework for public land management within the jurisdiction of the VFO and its allocation of resources pursuant to the multiple-use and sustained yield mandate of FLPMA." (page 1)				
Vernal Field Office: Record of Decision and Approved Resource Management Plan — Appendix A. Best Management Practices for Raptors and Their Associated Habitats in Utah. August 2006	UT25	Bureau of Land Management	2008	28
"Future raptor management on BLM lands in Utah will be guided by the use of these Best Management Practices (BMPs), which are BLM-specific recommendations for implementation of the U.S. Fish and Wildlife Service, Utah Field Office's "Guidelines for Raptor Protection From Human and Land Use Disturbances" ("Guidelines")." (page A-1)				
Vernal Field Office: Record of Decision and Approved Resource Management Plan — Appendix K. Surface Stipulations Applicable to All Surface Disturbing Activities	UT27	Bureau of Land Management	2008	84
"This appendix lists surface stipulations referred to throughout the Approved RMP. Surface stipulations will be appended, where applicable, to land use authorizations, permits, and leases issued on BLM administered lands." (page K-1)				
Vernal Field Office: Record of Decision and Approved Resource Management Plan — Appendix R. Fluid Minerals Best Management Practices (BMPs)	UT32	Bureau of Land Management	2008	11
"The following typical environmental Best Management Practices (BMP) may be applied on individual Applications for Permit to Drill and associated rights-of-way in the Vernal Field Office on a case-by-case basis." (page R-1)				
Vernal Resource Management Plan Draft Environmental Impact Statement	UT03	Bureau of Land Management	2005	0
The Vernal Field Office (VFO) of the Utah Bureau of Land Management (BLM) is revising and integrating the Book Cliffs and Diamond Mountain Resource Management Plans (RMPs) into a single new RMP for the Vernal Planning Area. The revised RMP will be called the Vernal Field Office RMP and will provide planning guidance for public land and federal mineral estate managed by the VFO in Daggett, Duchesne, and Uintah Counties in northeastern Utah, as well as a small portion of Grand County. The DEIS analyzes the proposed revision and alternatives. Appendix K includes lease stipulations for all surface disturbing activities.				
Vernal Resource Management Plan Draft Environmental Impact Statement — Appendix A: Vernal Field Office Best Management Practices for Raptors and Associated Habitats	UT04	Bureau of Land Management	2005	0
The Vernal Resource Management Plan DEIS analyzes management options for the Vernal Plannig Area. Appendix A provides management practices for raptor conservation in the Vernal Resource Management Area. The appendix also provides specific strategies for reducing conflicts between oil and gas development and raptors and criteria for modifying the recommended management practices.				
Vernal Resource Management Plan Draft Environmental Impact Statement — Chapter 4.15 Special Status Species	UT06	Bureau of Land Management	2005	11
The Vernal Resource Management Plan DEIS analyzes management options for the Vernal Plannig Area. This chapter describes the overall threats				

http://www.oilandgasbmps.org/bibliosearch.php?mode=2&kw=Vernal&...ubYear&showanno=1&showsect=1&showcnt=1&sortby=pubName&sortby2= Page 1 of 2

Bibliography Search Report
Source Publication Record Detail

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Intermountain Oil and Gas BMP Project

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Annotation:	This Record of Decision (ROD) documents the Wyoming State Director's decision to approve the preferred alternative as described in the Atlantic Rim Natural Gas Field Development Project (ARNG) Final Environmental Impact Statement (FEIS). The ARNG FEIS analyzes various options for oil and gas recovery and resource mitigation. The decision emphasizes limiting surface disturbance and performing interim reclamation, cooperative air quality monitoring with the state of Wyoming, and continued resource monitoring and consultation with federal and state agencies. The ROD provides the plan for future management of the federal surface and mineral estate in the Atlantic Rim Project Area (ARPA).
Required vs. Recommended:	Required -- [Appendix B] "... to the Atlantic Rim Record of Decision (ROD) lists the requirements that will be imposed, as appropriate, by the Bureau of Land Management (BLM), Rawlins Field Office (RFO) on all oil and gas development actions approved on federal lands and minerals within the Atlantic Rim Project Area (ARPA). These requirements include mitigation identified in specific resource mitigation subsections of chapter 4 of the Final Environmental Impact Statement (FEIS) for the ARPA." Pg. B-1 Required -- Appendix C: "Many of these environmental protection measures [BMPs] would be included as Conditions of Approval (COAs) in this ROD. However, by additionally including them as Operator-committed practices, the various Operators have made a commitment to implement them throughout the life-of-project (LOP), and the impact analyses provided in the Final EIS take into consideration the implementation of these measures based on this commitment." Pg. C-1
Ownership:	Federal -- "The ROD provides the plan for future management of the federal surface and mineral estate in the Atlantic Rim Project Area (ARPA)." Pg. 1 "The BLM has approval authority over actions on federal minerals and lands. When evaluating development applications for affected federal minerals and lands, the BLM will consider impacts and surfae disturbance thatt occur on private and/or state lands relative to an Operator's disturbance cap allocation." Pg. 5-6

View all BMPs that reference this publication

2 Website Background Material

- Resource Pages
- Law & Policy: Federal, State and Local
- Links
- Case Studies
- Cost Analysis
- Effectiveness Data and Critiques

2 Website Background Materials

Resource Pages

- Development Process
- Air Quality
- Water Quality
- Vegetation
- Wildlife
- Reclamation
- GIS
- Communities
- Solid Waste
- Benefits
- Economics
- Oil and Gas Fields

Native Vegetation and Rare Plant Resources affected by Oil and Gas Production 10/10/09 4:06 PM

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Intermountain Oil and Gas BMP Project

Vegetation

Native Vegetation and Rare Plant Resources

This resource page focuses on the impacts oil and gas development has on native vegetation and rare plants. Through it, we hope to bring awareness to a commonly overlooked component of our natural heritage and crucial element of wildlife habitats -- plants.

"Negative impacts to biodiversity [resulting from oil and gas development] may mean habitat conversion, degradation and fragmentation; air, water and soil pollution; deforestation; soil erosion and sedimentation of waterways; soil compaction; contamination from improper waste disposal or oil spills; and loss of productive capacity and degradation of ecosystem functions."

Center for Plant Conservation

Native vegetation and rare plants support wildlife, the environment, and people. Destruction of native vegetation (by a variety of activities), invasion by foreign plants and animals, over collection, and other environmental damage are eroding our natural plant communities.

Plants and Our Ecosystem

Plants perform irreplaceable functions in natural communities. Photosynthesis by land plants and algae is the ultimate source of energy and organic material in nearly all ecosystems. Plants are the primary producers in most terrestrial ecosystems and form the basis of the food web in those ecosystems. Native plants are especially important to natural communities because they have evolved over time to adapt to the specific climate and habitat of the region. Humans also utilize many resources provided by plants including, food, wood, cloth, and medicines, and use plants for recreational, cultural, and aesthetic purposes.

Plants Gifts' To Ecosystems

Environment	Humans	Wildlife
clean air	food	habitat
clean water	fibers	shelter
erosion control	fuel	food
wind moderation	pharmaceuticals	protection
water impact moderation	shelter	
shade	ornamentals	
	fragrance	

"Native plants are in balance with the ecosystem, provide cover and food for native animals, and have developed a surprisingly diverse array of relationships with soil fungi and other native microorganisms."

Native Plant Society of New Mexico

Environmental Protection For Plant Species

Threatened and Endangered Plant Species in the Intermountain States

The Endangered Species Act (ESA) is a powerful federal law that regulates management of threatened and endangered wildlife species through critical habitat designations and strict controls on activities that could cause harm to protected species. The U.S. Fish and Wildlife Service administers the ESA as it applies to both private and public entities, but state wildlife agencies play a cooperative role in the listing and management of threatened and endangered species.

Listed Plant Species
Colorado: 13 plant species listed
Montana: 3 plant species listed
New Mexico: 13 plant species listed
Utah: 24 plant species listed
Wyoming: 5 plant species listed

Rare Plants 101

The US Forest service answers these commonly asked questions about rare plants:
What is a Rare Plant?
Why Are Some Rare?
Are All Rare Plants Endangered?
How Many?
How Are Rare Plants Conserved?

Plant Field Guides & Resources
Colorado Rare Plant Field Guide
Montana Field Guides
New Mexico Rare Plants Website
Utah Rare Plant Guide
Wyoming Rare Plant Field Guide

Rare Plant Profiles
Colorado Profiles
Montana Profiles
New Mexico Profiles
Utah Profiles
Wyoming Profiles

Rare Plant Species Impacted by Oil and Gas Development on Forest Service Lands

From Celebrating Wildflowers: Rare Plant Profiles
U.S. Forest Service Plant Profiles provide information on the listed Threatened and Endangered and other critically imperiled (by NatureServe's definition) plants occurring on the national forests and grasslands in each state. The links include information on threats to these species and conservation efforts in place to protect them. The following rare plants are being impacted by oil and gas development.

Guadalupe Mountain necklacepod (Sophora gypsophila var. guadalupensis)

Heliotrope milkvetch (Astragalus limnocharis var. montii)

Draft Heliotrope milkvetch (Astragalus montii) Recovery Plan

Last Chance townsendia (Townsendia aprica)

http://www.oilandgasbmps.org/resources/vegetation.php Page 1 of 4

2 Background: Law & Policy

Natural Resources Law Center University of Colorado Law School

Intermountain Oil and Gas BMP Project

Federal Laws: Oil & Gas•Air•Water | Colorado Laws: State•Local | Montana Laws: State•Local | New Mexico Laws: State•Local | Utah Laws: State•Local | Wyoming Laws: State•Local

Law & Policy

Overview

Oil and gas development is regulated by all levels of government -- Federal, State, and local. Some statutes deal with oil and gas operations directly, while others are more generally concerned with protecting human health, air, land, wildlife, water or other resources and incidentally apply to oil and gas. After laws are passed by Congress or a state legislature, it is the task of an administrative agency such as the Bureau of Land Management, the Environmental Protection Agency, or a state agency or commission, like the Colorado Oil and Gas Conservation Commission, to issue regulations, further defining, and consistent with, the original law. Beyond their regulations (also called rules), the agencies might also issue policy or guidance documents to further explain the law. At the local government level, the law itself, usually called an ordinance, is the most detailed provision of law.

Federal Lands

The Federal government owns a large percentage of the land within each of the Intermountain states:
Colorado - 36.9%
Montana - 29.9%
New Mexico - 41.8%
Utah – 57.5%
Wyoming - 42.3%

From: Federal Real Property Profile, 2004

Which laws are applicable to a particular development depends in part on who owns the land and who owns the minerals. For federal lands or minerals, the process can involve all three levels of government. For private or state lands and minerals, the process is mostly state and local, although all development needs to comply with the national environmental laws like the Clean Air Act and Clean Water Act. For additional information on the Clean Air Act, Clean Water Act, and other laws applicable to oil and gas development, click on one of the links at the top of this page (e.g., Federal Laws: Oil and Gas). Or go to the index page of the Federal Laws Section on the Red Lodge Clearinghouse website and choose a topic.

Where there is a "split estate" -- different parties owning the surface of the land and its minerals -- regulation can be even more complex. Confusion and frustration can also arise where more than one level of government claims jurisdiction. When Federal, state, and local governments all try to regulate development and their laws conflict with one another, the doctrine of preemption dictates that the federal laws will prevail over conflicting state or local laws, and that state laws will prevail over conflicting local laws. While this hierarchy may appear clear-cut, it is not always clear if there is an actual conflict of law that would trigger preemption.

Federal and State Law Summaries and Links

Our federal, state, and local laws pages provide brief summaries of the laws, regulations, and agency policies and guidelines of particular importance to regulation of oil and gas development. They also provide links to the codes, regulations and to the agencies in charge of regulating the industry.

For law and policy of a specific jurisdiction, click on one of the following links or on one of the links at the top of this page.

Federal: Oil and Gas | Air | Water

Colorado: State | Local

Montana: State | Local

New Mexico: State | Local

Utah: State | Local

Wyoming: State | Local

How do Best Management Practices fit into "Law"?

"Best management practices (BMPs) are state-of-the-art mitigation measures applied on a site-specific basis to reduce, prevent, or avoid adverse environmental or social impacts."
- Bureau of Land Management BMP website

Many people associated with oil and gas development think of BMPs as strictly voluntary practices. In the Intermountain Oil and Gas BMP Project Database, we have taken a more expansive view of BMPs, in part because what is voluntary today may be required tomorrow or may change from one jurisdiction to another. Consequently, we have included both voluntary and required practices in our database. We designate BMPs as either "Required" or "Recommended" in the database and provide our rationale for this designation in our bibliography.

For more explanation of our designation of BMPs as "Required" or "Recommended", see Use of "Required" versus "Recommended" for BMPs.

Only a small percentage of BMPs are designated as "required" practices

Intermountain Oil and Gas BMP Project

Utah County and Municipal Law

Several county and municipal governments in Utah have enacted regulations and ordinances, to supplement the applicable federal and state laws and regulations for managing oil and gas development in their jurisdictions.

Not every county or municipality in Utah has chosen to implement such regulations, and among those that have, some address oil and gas issues in more detail than others. The following are examples of local oil and gas regulations currently in place in Utah. Links to the full text of each county's or municipality's regulations are provided below, but provisions of particular interest are identified as well.

For more information on individual counties visit the Utah Association of Counties. Also, for more information on geology of individual counties visit the Utah geology page.

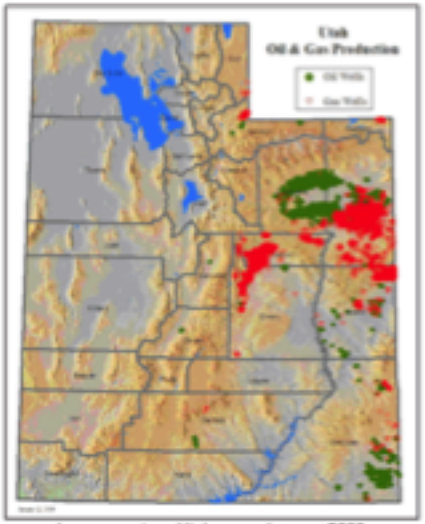

Image courtesy Utah.gov – January 2009

Utah Counties

Carbon | Davis | Duchesne | Emery | Grand | Millard | Sanpete | Summit | Uintah | Wasatch

Carbon County

Carbon County Oil and Gas Provisions: Carbon County is located between Duchesne and Emery Counties in North Eastern Utah. Carbon County has a significant amount of oil and gas development. The Uinta Basin encompasses the eastern portion of the county and there is a large natural gas field in most of the western portion of the county. Visit the Carbon County website. Contact the Carbon County commissioners.

Provisions of particular interest from the Carbon County Development Code include:

Table 5.1 – Lists Oil and Gas Wells as a conditional use in all zones except WS (Water Shed), SL (Scotfield Lakeshore Zone), and HMC (Historic Mining Camp Zone). There are no other provisions specific to oil and gas development, however, the provisions indicate that Carbon County considers the Utah Division of Oil, Gas, and Mining to be the county's expert on all issues relating to oil and gas and has adopted all of the applicable state regulations.

Davis County

Davis County Oil and Gas Provisions: Davis County is located in north central Utah on the West side of the Great Salt Lake. There is no large-scale oil and gas development in Davis County.

Visit the Davis County website. Contact the Board of Commissioners.

Provisions of particular interest from the Davis County Code include:

Chapter 14.12 deals with excavation of natural resources in general, but does not specifically deal with oil and gas. There do not appear to be any provisions in the code that directly deal with oil and gas regulation.

> **§ 14.12.010 Purpose and Intent** – describes the purpose of the ordinance and that while mineral extraction is a value to the County and society, it should be done in a way that minimizes environmental impacts.
>
> **§ 14.12.020 Enforcement** – describes enforcement mechanisms for the provisions of the chapter

Project Sponsors/Advisors

Project Funding

- Miller, Agro & Robbins
- RPSEA
- LCAOF
- RMMLF
- U of C Outreach
- Ruckelshaus Institute
- Upper Green River Valley Coalition
- Petroleum Field Services, LLC

In-kind Contributions

- Advice
- DB Information
- Case Studies
- BMP critiques
- Workshop/Field Trips

See our ABOUT US page for details

What We Need from You!

- Try the DB -- What works? What would improve it?
- Give Us Advice
- Provide DB information (Company guidelines or manual?)
- Provide case studies
- BMP critiques
- Speak at our workshops
- Lead field trips

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